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REPORT

Jacob Barnet

TO THE

DIRECTORS AND STOCKHOLDERS

OF THE

FLORIDA RAILROAD COMPANY,

JULY, 1855.

WASHINGTON:
PRINTED AT THE GLOBE OFFICE.
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REPORT.

To the Directors and Stockholders
of the Florida Railroad Company:

The work upon your road being expected to commence shortly, I have deemed it advisable to lay before you some views respecting the probable sources of its business.

The route of the Florida railroad, or that part which for the present engages the efforts of the company, lies across the peninsula of Florida, from Fernandina, on the Atlantic, in latitude 30° 40′, longitude 81° 37′, to Cedar Key, on the Gulf of Mexico, in latitude 29° 07′, longitude 83° 03′.

Its length, as determined by surveys of the United States engineers, will be one hundred and thirty-seven and a half miles.

The track of the road will be laid upon an air line between the two terminal points, there being no natural obstacles to interfere with this purpose.

The maximum grade, adopted as a basis for the present estimates of cost, is fifteen feet; but with a very small additional expense this can be reduced to ten feet, and it is probable you may hereafter conclude to do so.

The work will be constructed in the most solid and substantial manner, and laid with heavy iron, not less than sixty pounds to the yard.

It is evident that the highest speed can be employed with safety for passenger trains; and that freights can be transported over this level road with great economy.

A survey of the route has been lately made by the United States

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Government, under direction of the War Department; and the report made to Congress by the Secretary of War is appended to this summary. (See Appendix A.)

HARBORS.

The ability of the road to secure a large business depends, in a great degree, upon the adequacy of the harbors for the commerce it will draw.

Upon the Atlantic side, a deep water harbor is required for the class of ships usually employed in long voyages, with heavy cargoes.

Upon the Gulf side, a harbor that will admit vessels capable of reaching the wharves of the ports from which the trade will be derived, and suitable for the Gulf navigation, is all that is needed.

Fernandina, on the Atlantic, is one of the best ports for commercial purposes south of the Chesapeake. It became known to the commercial world in 1811–'12, during the American embargo law, as an entrepot of trade—its fine harbor, and the circumstance that it was a neutral port (Spanish) adjacent to the American waters, giving it advantage for the purpose. It is said that as many as two hundred square-rigged vesselshave been in port there at the same time.

The entrance is easy with all winds; the channels (of which there are three) straight; the harbor deep, varying from twenty to fifty feet, and perfectly land locked; the anchorage extensive; the holding ground of the best description. The deep-water line reaches close the shore for a length of two miles; so that a continued wall, but little advanced from the line of shore, would give wharfage for two miles, with a depth of twenty to thirty feet at low water; and warehouses can line the wharf front.

The entrance from sea to the wharves will be about two miles, and from the plateau of the town the approach of vessels can be observed seaward as far as a telescope can sight.

The depth on the bar is stated in the report of the War Department annexed, to be "fourteen feet at low water, with a rise of 'water at ordinary tide of six feet, and at neap and spring tides of 'seven and a half to nine feet, thus giving a depth on the bar varying 'from twenty to twenty-three feet."

Charleston has ten feet at low water; and Savannah has eight feet at low tide up to the wharves, and eleven feet at low tide up to the anchorage, where large vessels load, seven and a half miles below the town. Baltimore has sixteen feet, with a rise of tide of only

one to three feet. All these cities conduct, with great success, a large and increasing commerce.

As compared, then, with other Atlantic ports of large commerce, it is evident that Fernandina is equal to any usual commercial requirement.

Its ability in this respect is further evidenced by the following facts, namely:

1. That of 10,430 vessels recorded upon Lloyd's list in 1853, only thirty-three drew twenty feet or more.

2. That of the vast number of vessels which entered the port of New York during the year ending June 1st, 1855, there were only eighty-nine pilotages by the New York pilots over twenty feet, (and this included the frequent trips of the Collins steamers, and immense Liverpool packets,) and only *seven* exceeded twenty-two feet, the ordinary spring-tide depth on the bar at Fernandina—a result ascertained by reference to the records of the New York commissioners of pilotage.

3. That by an examination of the tonnage and draught of vessels that entered and cleared at Savannah for nine months terminating 1st December, 1852, it was found that the average draught for a vessel of 200 tons was ten feet, and for one of 600 tons was thirteen feet.

It is thus apparent that there are very few ships, British or American, which could not load at the wharves of Fernandina to full draught, and depart with a suitable tide.

The estimate of Fernandina as a marine harbor is shown from the fact that it was selected by the Engineer Bureau and War Department, with the sanction of Congress, as the first harbor south of Savannah to be fortified; and a large fortification (Fort Clinch) is now in course of construction there.

The report of the chief engineer of the United States Army of 30th November, 1844, (Senate Doc. 28th Cong., 2d Sess.,) contains the following reference to the subject of the fortification on Cumberland sound, in which bay the harbor of Fernandina lies. The fortification recommended was provided for, and is located upon a tract immediately adjoining the site of Fernandina:

"*Proposed Fort for the entrance to Cumberland Sound, Georgia.*—The Executive has repeatedly approved the recommendation 'from this office for the commencement of a new fort on the coast of 'Georgia; and successive military committees have reported favor-'ably on it. A very fine survey, recently completed by an officer of 'topographical engineers, of the mouth of the St. Mary's river, or

'of Cumberland Sound, (the entrance to Fernandina,) confirms the 'opinion, long entertained, that this, the most southern harbor on the 'coast of Georgia, is also one of *the safest* and *most accessible*. 'There are three or four of the harbors of the same State which are 'amongst the best on the southern coast, both as regards depth of 'entrance and safety of anchorage, and all these must, as means can 'be afforded, be sealed up for our own use, and against an enemy. 'But as we are probably to begin with one only, I have to recom- 'mend the one above-mentioned.

"It is probable that in two of the harbors alluded to there may be 'a rather greater depth than on the bars of Cumberland harbor; but 'the two good entrances possessed by the latter, independent of a 'third for smaller vessels, the proximity of the bars to the shore, the 'geographical position of the harbor, together with other consider- 'ations, require, in my opinion, that the defenses be now placed as 'above indicated."

He adds:

"This is our most southern port accessible to vessels of war, and 'is the nearest to the great channel of navigation flowing out of the 'Gulf of Mexico."

Cedar Key, upon the Gulf side, admits ten feet at low water, and twelve and a half at ordinary high tide.

Its quality as a commercial harbor is exhibited by the statement of the Superintendent of the United States Coast Survey, published with this. (Appendix B.)

It will be seen to be quite sufficient for all the requirements of Gulf trade, there being no commercial port on the north side of the Gulf with which Cedar Key would be in connexion, which has over twelve feet at high water to the wharf, except New Orleans, which has, at the mouth of the Mississippi, at high water, fourteen feet in the best pass. (See the table prepared at the Coast Survey office, and contained in Captain Smith's report of the survey.)

A very important consideration, bearing upon the economy and advantage with which commerce can be conducted at these ports of Fernandina and Cedar Key, is that the town sites of each are located upon a sea island, with full exposure to the sea breezes, and having no fresh water marshes in their vicinity; so that health may be relied upon at all times of the year. The mild latitude in which they lie, and their high open sea location, renders the residence at either of them very agreeable and healthful throughout the year.

The harbors and town locations at the terminal points of the road

being suitable for commerce, attention may be turned to the business which the road will be likely to command.

LOCAL BUSINESS.

The peninsula of Florida, or that portion of Florida lying east and south of the Suwanee river, is believed to be the most desirable planting country in the South, and is in progress of rapid development.

In point of climate, it is shown by the meteorological statistics published by Surgeon General Lawson, United States Army, as derived from the diaries kept at all the military posts, to have a more equable temperature in summer and winter than any other part of the United States. The mercury, as he states, rises higher in summer, and falls lower in winter, everywhere else where observations were made, than upon the coast of Florida; and in point of equableness it surpasses Italy.

As regards healthfulness, the vital statistics collected by the Government with the census in 1850, shows that the peninsular portion of Florida exceeds every other part of the United States. (See letters from Superintendent of the Census, and Surgeon General of the United States Army, Appendix C.)

The soil of the peninsula is very productive, and yields all the richest staples.

It produces the long staple, or Sea Island cotton of commerce, over every part of it, with a productiveness surpassing the coasts of South Carolina and Georgia, to which this staple had been before limited; and can supply any quantity of it to which the consumption can ever reach.

It produces sugar, with great advantage over Louisiana or Texas, having a superior climate for the cane; and has sugar lands enough to supply a large part of the consumption of the United States.

It produces a tobacco peculiar to its climate and soil, which commands in market from fifteen to seventy-five cents per pound.

It has fine and extensive natural pasturages, and produces large supplies of neat cattle for market.

It is a fine fruit and vegetable gardening region. Peas, and most other garden stuffs, blossom and bear throughout the winter. The value of this capability, when lines of steamers are established to New York, may be estimated from the fact that the Norfolk steamers carry on some of their trips over two thousand barrels of market stuff to New York, within which city, and in other towns convenient

to its markets, there are nearly two millions of people to consume the products of the garden carried there for sale.

It has the most valuable forest woods in great abundance—live-oak, red cedar, cypress, and yellow pine of the first quality.

The road so crosses the peninsula as to command the transportation business of a great part of the agricultural productions of the best part of it. And as it passes through a finely-timbered country, the naval store and lumber business will furnish large employment throughout the year.

In addition to the immediate business of the country it will drain, it will derive a considerable employment from its connection with other roads. The central road of Florida, which crosses the Appalachicola river, near the junction of the Flint and Chattahoochee, and passes through the fine upland or short staple cotton country of West and Middle Florida, and adjacent to the southern tier of counties in Alabama and Georgia, crosses the track of the Florida railroad at a convenient point, making a connection both on the west and east advantageous to both roads. The work on the central road is ready to progress on the most important portions of it.

The road from Tampa or Charlotte Harbor to Fernandina, will use a large part of the Florida Railroad, (probably eighty or ninety miles,) and will make a valuable connection southward.

There can be no doubt that the local resources on the route will yield a remunerative return upon the cost.

THROUGH BUSINESS.

As a portage road for the great commerce in merchandise between the Atlantic and Gulf ports, and as a thoroughfare of travel, the Florida Railroad has a very great value.

The rapidly increasing population, wealth, and commerce, of the Gulf States, and of that part of the Mississippi and Ohio valleys that trade through New Orleans, would soon leave in the rear any calculations based upon their present commerce with the Atlantic ports. All calculations, therefore, based upon the present business, are entirely safe, for an annual increase in that commerce must continue for centuries yet to come.

The custom-house returns of the coasting trade do not furnish data for precise knowledge of the amount and description of merchandise exchanged between these two sections; but it will strike every person who is at all conversant with the commerce of the country, that the

exchanges of merchandise between these two great sections are of vast annual amount.

Some idea of the intercourse between them may be derived from the tonnage employed in the trade. By the statement from the Treasury Department, (see Appendix marked D,) it will be seen that during the year ending June 30, 1854, there were cleared at the custom-houses of Boston, New York, Philadelphia, and Baltimore, for the Gulf ports in Florida, Alabama, Louisiana, and Texas 882 vessels, with an aggregate tonnage of 453,378 tons, being an average of 1,448 tons for each business day in the year. Estimating that the same tonnage entered in the same Atlantic ports from the Gulf ports during that year, there would be an average entry and clearance of nearly 3,000 tons for every business day in the year.

And the value of merchandise cleared in one year from the single port of New Orleans for Boston, New York, Philadelphia, and Baltimore, amounted to $17,663,422.

To these figures is to be added the business of all the Atlantic ports south of Baltimore with the Gulf ports.

The Treasury Department, in a communication dated in 1852, estimated the trade which passed through the Florida straits to and from the American ports on the Gulf of Mexico, at $325,000,000.

The lines of railroad projected from Pensacola, Mobile, and New Orleans, to the interior, and most of which are in course of rapid construction, will increase still more the amount of business that will concentrate at those ports with the Atlantic.

Can the Florida Railroad control any reasonable share of this large commerce in its transit?

It can do so, if the transportation can be effected by this route with most economy, with most dispatch, and with most certainty. These are all elements in commercial values, and will always rule the channels of trade where they prevail to any appreciable amount.

The only competition which the road must overcome, to enable it to control the through transportation between the Atlantic and the ports on the Gulf, will be the sea route around the capes of Florida.

The distances used in all the calculations in this report will be taken from tables prepared at the Coast Survey office.

The charge for crossing on the Florida railroad will be calculated at three cents per ton per mile; but being a cheap and level road, it could be afforded at a less charge if necessary to meet competition.

The cost of water transportation is thus stated in the report of the State engineer of New York to the Legislature in 1854.

Table of the cost of transport per ton per mile.

Ocean, long voyage	1 mill.
Do. short do	2 to 4 "
Lakes, long do	2 "
Do. short do	3 to 4 "
Rivers, Hudson, and of similar character	2½ "
Do. St. Lawrence and Mississippi	3 "
Do. tributaries of Mississippi	5 to 10 "

I will assume three mills per ton per mile as the average cost of water transportation under ordinary circumstances.

The estimated cost of a transhipment, as ascertained at the points where large transfers of freight occur, is ten cents per ton.

The rate of insurance from New York to New Orleans by the Florida route, as derived from comparison with rate for similar risks, would be seven eighths of one per cent.

The rate of insurance from New York to New Orleans round the capes of Florida, averages one and five eighths per cent. the year through. (See letter from Globe Insurance office, Appendix E.)

The risks which cause the high rate of insurance to the Gulf ports are encountered in the straits of Florida, upon the reefs of which the losses considerably exceed two millions annually. These risks are avoided by the Fernandina route.

The estimated average value of one hundred pounds of merchandise of the various descriptions the Fernandina route would compete for in the transport business from the Atlantic to the Gulf ports, is stated in the handbill advertisement of the Union Express Company of New York to be, as follows:

	Value per 100 lbs.
Dry-goods, (general assortment)	$50
Books and stationery, (common stock)	72
Boots and shoes, (average value)	74
General stock of groceries, (excepting such articles as would generally come from the West)	20
Druggists and grocers, (city assortment)	44
Hats, caps, and furs, (general assortment)	86
Hardware, (shelf goods generally)	36

The average value of merchandise included in the above list would thus seem to be in round numbers eleven hundred dollars, per ton.

With these various data as a guide, we may now try the ability of the Fernandina route to compete with the water route around the capes.

The test is met in a striking and conclusive manner by the fact that merchandise, specified in the foregoing list, *can be transported by the Fernandina route profitably for the difference in the insurance between the two routes.* So that it would be cheaper to the shipper (besides the value of greater celerity and certainty) to pay a remunerative freight on the Fernandina route, than to ship by the sea route WITHOUT ANY CHARGE OF FREIGHT.

The calculation in the form of figures is as follows:

Insurance on a ton of freight of the average value of $1,100 by the sea route at one and five eighths per cent.	$17 87½
Insurance on same by Fernandina route at seven eighths of one per cent.	9 62½
Making a difference of insurance in favor of the Fernandina route upon a ton of assorted merchandise of	$8 25

Now, the freight transport between New York and New Orleans would be as follows:

New York to Fernandina, water, 761 miles, at 3 mills	$2 28
Fernandina to Cedar Key, railroad, 138 miles, at 3 cents	4 14
Cedar Key to New Orleans, water, 399 miles, at 3 mills	1 17
Two reshipments	20
	$7 79

The comparison then would stand thus:

Difference of insurance	$8 25
Freight from New York to New Orleans by Fernandina route,	7 79
	46

So that the freight charge from New York to New Orleans upon a ton of assorted freight of the average value of $1,100, would be 46 cents less than the insurance saved by employing that route; and it should be borne in mind that much of the freight to be transported, especially dry-goods, will very far exceed in value $1,100 per ton.

It is evident, therefore, that it would cost a shipper more to deliver his merchandise at New Orleans by the sea route, if he paid no freight at all, than by the Fernandina route, paying the full freight.

But this would not be the only advantage of the Fernandina route. It would also have the advantage in celerity and certainty.

Freight from New York could be delivered in New Orleans by the Fernandina route with great ease in six days, while the average sailing time around would be over twenty days, and the average steaming time nine days. And as the travel would admit of a daily line, and as about seven hundred miles of sea travel, with all the vicissitudes of winds and dangerous navigation, would be avoided, the certainty and regularity would be infinitely greater.

The value in commercial estimation of speed and certainty is shown by the fact that shippers pay now, by steamer from New York to New Orleans, thirty cents per cubic foot in preference to ten cents by sailing vessels, which is the established difference. At this difference of three to one the steamers have driven out of use a great part of the lines of sailing packets that formerly plied between New York and New Orleans.

No daily line of steamers between New York and New Orleans could compete with the Fernandina route, because the steamers required for the long voyage round, daily service, would be greatly more numerous and costly than those which will answer for the Fernandina route, because the great amount of fuel required for the long voyage would greatly diminish the capacity for freight as compared with the other route, and because the cost of insurance on the ships and their running expenses would be comparatively so much greater. Besides, the cost of transporting freight on the Fernandina route would be greatly lightened by the large travel which would follow the line, and by the local business of the road.

But the through freight which the line will attract is not limited to that which is destined for the Gulf ports and the country immediately adjacent. It must draw a large transportation business from New York for the whole valley of the Mississippi. And if in what follows it is shown that the line can carry freight from New York to the Mississippi valley cheaper than other routes, the same proofs will show its ability to carry back-freights cheaper, also.

The amount of transportation business between the Atlantic ports and the Mississippi valley is hardly computable. Some idea may be formed from the fact stated to me by a merchant, that a single house in St. Louis makes purchases in New York annually to the amount of one and a half million of dollars. Already the press of freight westward is so great that the various lines pointing in that direction through New York, Pennsylvania, and Maryland, have ceased to be competitors, all of them being well employed, and have combined to raise charges at uniform rates for through freights. This affords

pregnant proof that the time has already come when new avenues for accommodating the transport business between the Atlantic and West are imperiously demanded. Indeed, it may be assumed that the increasing business growing out of the rapid settlement of the West, will furnish reasonable employment for a new avenue of transportation in every period of five years. In the rapid advance of population and commerce along the lines of road now in operation, it is doubtful if, in the course of some years, these long lines to the interior can do more than furnish transportation for the country immediately adjacent to them. Tracks can be multiplied across the Florida peninsula at small comparative expense, and the rest of the route being open water, the increasing necessities of commerce for transportation may be thus met, and no otherwise so well.

The Fernandina route, then, will open a new and available channel between New York and the valley of the Mississippi.

In illustration of its ability for this business I will take St. Louis as the point of destination, because, if freight can be delivered at St. Louis to advantage as compared with the inland routes, so much the more evident it will be that at Memphis, Cairo, Natchez, and Vicksburg, and all the Mississippi country below St. Louis, the advantage of the Fernandina route over others will be still greater.

Let us settle first the cost and time in delivering freights from New York, at St. Louis. We will adopt for this purpose the line which professes the greatest speed, namely, the Merchants' Despatch line; and in order that no doubt may exist as to the data of the calculation, we will take a bill of lading for fifty boxes of dry-goods, as furnished to a house desiring the information, and the letter that accompanied it.

The inquiry was, at what cost and in what time they would deliver fifty boxes of dry-goods at St. Louis. The reply was as follows:

"MERCHANTS' DESPATCH, NEW YORK, *June* 15, 1855.

"Assuming that the dry-goods referred to are in boxes, we state 'that we will give forwarding bills for the same, agreeing to deliver 'them in St. Louis in eleven days, (Sundays excepted,) at $2 65 'per hundred pounds.

"The route will be, People's Line Steamers to Albany, railroad 'to Buffalo, steamer to Detroit, railroad, via Chicago, to St. Louis— 'four reshipments.

"Should you send by our despatch, please mark them 'Mer-

'chants' Despatch,' and ship by People's Line. For their receipt 'we will furnish forwarding bill as inclosed.

"Yours, respectfully, A. H. LIVINGSTON, *Agent.*"

With the letter was inclosed a *pro forma* forwarding bill as follows:

"Received of L. A. & Co., by the Merchants' Despatch, on 'board the People's Line, in apparent good order, the following 'packages, being marked as in the margin, to say, fifty (50) boxes, 'to be forwarded in like good order, (dangers of navigation and from 'fire excepted,) to St. Louis only, he or they paying freight for the 'same, at the rate of $2 65 per hundred pounds. Five cents per 'hundred pounds deduction being allowed for every day's detention 'over eleven days, in forwarding as above, unavoidable delays and 'Sundays excepted.

"This receipt is not binding unless the freight for which it is 'given is marked 'Merchants' Despatch.'

"Dated, New York, , 185 .

"For the Proprietors,

"Cabinet ware, boxed, carriages, boxed, children's wagons, boxed, fancy 'paper boxes, boxed, musical instruments, boxed, sleighs, boxed, toys, boxed, 'and trees and shrubbery, domestic packages, *will be rated at once and half actual 'weight.* Chairs, boxed, looking-glasses, boxed, show cases, boxed, baskets, 'hobby-horses, and children's wagons, unboxed, and willow ware, *will be rated at 'twice actual weight.*

"Glass, wrought marble, fragile fabrics, and perishable articles, will be taken 'only at owner's risk. No damage will be allowed for loss arising from improper 'packing, insufficient cooperage or strapping, or for detention or loss caused by 'defective marking, or where the marks or directions on packages are made on 'paper or cards.

"No allowance for deficiency of lemons or oranges, if not covered with canvas, 'will be made. No package will be taken for less than 50 lbs., unless forming 'part of an invoice; nor if part of an invoice, for less than 25 lbs."

Thus it will be seen the rate of transportation charged is fifty-three dollars per ton, the reshipments four, and the time eleven days, Sundays excepted, which would make the actual time generally thirteen days.

It will be observed:

1. As to charge; that a large class of goods, as appears by note at foot of forwarding bill, are rated at twice actual weight, and others at once and a half, being respectively $106 and $79 50 per ton freight.

2. As to liability; that glass and other fragile fabrics, which are

more liable to breakage on railroad than on water routes, are at owner's risk.

3. As to time; that *unavoidable delays* are excepted, and that the forfeit is only one dollar per ton for each day's delay; so that after being at the trouble of proving the delay to have been avoidable, (which few shippers would undertake,) there may be a delay of thirteen days, (making twenty-five days for time of transportation,) without reducing the freight below forty dollars per ton.

It will be observed, also, that the water route is used on the Hudson river and on Lake Erie, so that it may be presumed in winter, when the waters are frozen and the roads crowded with business, the cost would be more and dispatch less.

We may now see at what rate and in what time the Fernandina route can participate in the transport business between New York and St. Louis.

From New York to New Orleans, as estimated before for one ton	$7 79
Transhipment at New Orleans	10
From New Orleans to St. Louis, 1,212 miles, at 3 mills	3 63
Being for cost of transportation from New York to St. Louis,	$11 52

In low stages of water on the upper Mississippi, goods destined for St. Louis could be landed at Memphis, and thence transported by railroad.

As regards time, the delivery in New Orleans can be easily made as before stated, in six days, and seven days would allow full time for reshipment and delivery at St. Louis from New Orleans, making thirteen days.

It will be observed that there are only three reshipments upon this route, while upon the other there are four.

The result is, that with equal speed freight can be transported upon the Fernandina route from New York to St. Louis for $11 55 per ton, as compared with $53 per ton on the inland route; leaving a margin of $41 45 per ton for additional charge.

Nor is the business in through freights which this route can profitably do, confined to the Mississippi valley. The circuit of trade in which it may legitimately share, extends to the Ohio valley, as high as Louisville, and to the lakes at Chicago.

1.—*As to the Ohio Valley.*

Taking Louisville as a point for comparison—

The charge from New York by railroad to Louisville is $42 per

ton; time, twelve days; three reshipments; five cents per hundred pounds forfeit.

The time may be extended to twenty days, and, deducting the forfeit, the charge would be still $34 per ton.

Now, take as before the cost from New York to New Orleans, by the Florida route..... ....$7 79
Reshipment at New Orleans..... 10
New Orleans to Louisville, 1,411 miles, at 3 mills..... 4 23

Making.....$12 12

as compared with $42 by railroad.

In regard to time, fourteen days would be ample time by the Fernandina route.

Of course, for all points on the Ohio below Louisville, as well as to Nashville, on the Cumberland river, the comparison will be still more in favor of the Florida route.

2.—*As to the Lakes at Chicago.*

The charge from New York to Chicago, by railroad, is $34 20 per ton.

When the lake navigation is closed by ice, which is the case for five months in each year, and the railroads are overcrowded with business, as will often be the case, the Florida route will be an available avenue to the Atlantic for Chicago, and especially for southern and central Illinois.

Freights from New York can be delivered at the depot of the Illinois Central railroad, in Cairo, by the Florida route, for $11 01 per ton; and heavy produce can be delivered at Fernandina, from Cairo, at $8 43 per ton.

The navigation between Cairo and Cedar Key is always open.

Another large item of through freight which the road will command, consists in provisions for the supply of the southern Atlantic planting States, and the West India and South American markets. Provisions can reach those markets of consumption cheaper, and to more advantage, through Fernandina, than by any other channel.

The advantage which Fernandina possesses in the West India and South American trade is owing to the fact that it lies on the northern edge of the northeast trade winds, and has, therefore, at all times a fair wind going to, and returning from, the West Indies and South America. A vessel from New Orleans, bound to any of those ports, is obliged to come through the Florida straits, and make the neighborhood of Fernandina before she can take her course.

While, on the other hand, a vessel from any of the ports of the Atlantic north of Fernandina, bound to those ports, has to pass through the belt of calms, denominated by Lieutenant Maury the "Calms of Cancer," and reach the latitude of Fernandina before she takes favoring winds.

The trade in provisions with the West India Islands and South America, may be judged from the fact that, in the three years of 1849–'50–'51, the exports of the single article of flour from the United States to those countries amounted to 2,362,000 barrels, or nearly two and a half million; and Fernandina being within the belt of the trade winds, which extends to all those countries, is better situated for this business than any other port of commerce in the United States.

Another of the chief items of through freight will be in cotton from the Gulf.

Of 3,624,000 bales, the crop of 1852–'53, 2,413,000 went from the Gulf ports. We may estimate the part of the cotton crop which would properly find its way to the Atlantic through the Gulf, without disturbing causes, at 2,500,000 bales.

Two hundred thousand bales of this would be generally required at the northern Atlantic ports, for home consumption, and would furnish back freights for the steamers engaged in conveying merchandise from the Atlantic to the Gulf.

Nor is it unlikely that a considerable part of the cotton from the Gulf destined for Europe would take its departure from Fernandina.

Fernandina is a healthy locality, a good and convenient shipping port, and made convenient to the Gulf by means of this straight level road, which may be considered as an extended wharf from the Gulf to the Atlantic.

For all the cotton of Texas and Appalachicola, it will certainly be the most convenient shipping port; and for New Orleans, Mobile, and Pensacola, it will be also convenient.

Economy of transportation, other things equal, will always decide the channels of commerce.

The average difference of freight to Liverpool from New Orleans, as compared with Charleston and Savannah, is about half a cent per pound, in the regular course of business. Shipments can be made from Fernandina even more cheaply than from Charleston, because, having deeper water, vessels of larger burden can be employed in the trade.

The difference of insurance would be 55-100 of one per cent. (See statement of Globe Insurance office, in Appendix.)

The cost of transferring cotton from New Orleans or Mobile to Cedar Key would be six dollars and four cents a ton, including insurance and all expenses, delivered alongside a ship at Fernandina.

The account, then, would stand thus, as between a shipment from New Orleans direct to Liverpool, or by the way of Fernandina:

Difference of freight on a ton of 2,000 lbs. at ½ cent.....	$10 00
Difference of insurance, estimating the ton to be worth $200, at 55-100 of 1 per cent.....	1 10
	$11 10
Less cost of transfer from New Orleans to Fernandina.....	6 04
Amount saved on each ton.....	$5 06

Now, estimating the quantity of cotton shipped from the Gulf at 600,000 tons, the saving upon a crop, by using the Fernandina route to Liverpool, would be three million thirty-six thousand dollars, ($3,036,000.) Or, upon a cargo of 1,500 tons, there would be a saving of $7,590.

To this should be added the difference in interest by shortening the voyage to Liverpool, and the difference of exchange in favor of an Atlantic port of shipment.

The following extract, from the last report of the Board of Internal Improvement in Florida, may not be without interest in this connection:

"No inconsiderable circumstance in determining the advantage of 'our routes for conducting the business of the Gulf basin is, that 'none of the points at which the produce now collects are suited for 'a large foreign commerce. Galveston admits less than 12 feet, the 'Mississippi only about 13 feet, and not more than 10 feet can be 'carried to Mobile at high water.

"The difficulty of conducting foreign commerce from New 'Orleans may be illustrated by the facts stated in a memorial to 'Congress by the Chamber of Commerce a few years since. It is 'therein stated, that 'within the last few weeks nearly forty ships 'have been aground on the bar, for various periods, from two days 'to *eight weeks*, some of which were compelled to throw portions of 'their cargoes overboard, and others to discharge cargo into lighters 'before they could be got through the channel, occasioning heavy 'expense to the goods, and great straining and injury, besides 'involving pecuniary losses which cannot be estimated at less than '$500,000.'

"At the time of the grounding of the steamer Georgia, Captain 'Porter, United States Navy, prepared a draft 'representing the 'appearance of the bar of the Mississippi river, May 16, 1852,' 'which was published by order of the Chamber of Commerce of 'New Orleans. The explanation printed with the draft stated as 'follows:

Vessels on New Orleans Bar.

	Tons.	Bales Cotton.	Value.	Detained.
Middlesex	1,430	4,500	$160,000	40 days.
Desdemona	625	2,200	80,000	35 "
Winchester	1,475	5,800	205,000	83 "
Progress	1,400	4,300	105,000	45 "
Goodwin	600	800	60,000	8 "
Montreuil	600	2,000	70,000	7 "
Liberty	740	2,000	70,000	5 "
Steamer Georgia	2,500			
Total cargoes			$795,000	
Value of vessels			705,000	
Or aggregate value of property detained			$1,500,000	

"It is added, in a note to the above table, that 'many other 'vessels than those above were aground at the same time, awaiting 'a swell from southeasterly gales.'

"Nor is Mobile better circumstanced for heavy commerce. In a 'memorial from the mayor and citizens of Mobile, lately presented 'to Congress, it is stated that vessels of heavy draught have to lie 'twenty-eight miles below the city, and are loaded and discharged 'there by means of lighters. This charge of lighterage only is shown 'to have amounted to $227,000 on the commerce of the previous 'season. This is not the greatest loss. The memorial enters into 'a calculation to show the damages done goods and produce by the 'necessary transhipments, and concludes that cotton at Mobile is 'injured to the amount of one eighth per cent. per pound in compari-'son with shipments to New Orleans, which, on the crop of the 'previous year, made a loss of $167,230; which, added to the 'lighterage, makes an aggregate loss on foreign commerce from this 'cause of $394,628. The injury to domestic trade is put at '$107,791 more, thus swelling the annual injury in conducting

'commerce at Mobile, from deficiency of harbor, to $502,599—a 'sum sufficient to have transferred the cotton shipped from Mobile, 'from her wharf, to Fernandina.

"Besides which, the interruption of business by a climactic mor- 'tality at Mobile and New Orleans, from which Fernandina would 'be exempt, must more or less affect the cost of factorage, freight, 'and facilities of business.

"The effect of our improvements will be, practically, to furnish 'the Gulf with a good Atlantic port by an extended wharf; and it is 'not doubted that, in progress of time, the Gulf ports will find their 'interest in a common resort to Fernandina as their seaport for 'foreign trade."

THROUGH TRAVEL.

This road will open a new and valuable line of travel:

I. Between the Atlantic and New Orleans.

II. Between the Atlantic and Cuba.

III. Between the Atlantic and the Pacific.

I.—BETWEEN THE ATLANTIC AND NEW ORLEANS.

Two routes may be used to Fernandina, the sea-board land route, or the water route.

1.—*The Sea-Board Land Route.*

The details of this route, when developed, will be as follows:

New York to Norfolk, by air-line railroad, (to be constructed.)

Norfolk to Wilmington, railroad, (constructed.)

Wilmington to Charleston, via Wilmington and Manchester railroad, (constructed,) and Northeastern railroad, (nearly completed.)

Charleston to Fernandina, water.

Fernandina to Cedar Key, railroad.

Cedar Key to New Orleans, water.

The time in which it is assumed the travel can be performed on this route rests upon the following data:

1. Letter from President Torrey, as to estimated time on the air-line road to Norfolk. (See Appendix F.)

2. The assurances of the Presidents of the roads between Norfolk and Charleston.

3. The speed on water as guarantied by George Steers, Esq., one of the most distinguished naval constructors in the country—the builder of the celebrated yacht America. (Appendix G.)

4. The ability of the Florida railroad for speed, being an air line and nearly level, and to be laid with heavy iron, (60 lbs. to the yard.)

The table of time is as follows:

New York to Norfolk		12	hours.
Norfolk to Charleston, (including changes)		19	"
Charleston to Fernandina,	do.	9½	"
Fernandina to Cedar Key,	do.	4½	"
Cedar Key to New Orleans,	do.	20	"
		65	"

or two days and seventeen hours.

If the Mexican Gulf railroad, now in operation from New Orleans to Lake Borgne, is extended to Cat Island, its contemplated terminus, the time to New Orleans can be still further reduced.

The prospect for the construction of the air-line road between New York and Norfolk may be inferred from Mr. Torrey's letter. (Appendix F.)

If the air-line road is not made, the route and time would be as follows:

New York, via Philadelphia, Baltimore, Washington, Petersburg, Wilmington, &c., as before by railroads already in operation.

New York to Charleston, the distance being by the railway guide 814 miles, at an average speed of twenty miles per hour... 41 hours*

Charleston to New Orleans, as before ..... 34 "

75 "

or three days and three hours.

If it is objected that eighteen miles per hour between Charleston and Fernandina, and twenty miles on the Gulf, is more than can be made, then, calculating at fifteen miles per hour on water, the practicableness of which is beyond any dispute, the time would be as follows:

If the air-line road is made ..... 73 hours.

If it is not made ..... 83 "

or three days and eleven hours, in the worst possible aspect, to wit: that no other roads are made than are now done, or nearly so, and that only fifteen miles per hour can be made on the water.

But that twenty miles an hour can be made on the Gulf, and on

*If the proposed road from Baltimore to Aquia Creek is made this distance will be reduced thirty miles.

the short passage between Charleston and Fernandina, is made very certain, not only by the guarantee offer of Mr. Steers, but by the fact that the first-class boats on Long Island Sound and on the lakes are stated to make that speed now.

2.—*The Water Route.*

New York to Fernandina, water	761 miles.
Fernandina to Cedar Key, railroad	138 "
Cedar Key to New Orleans, water	400 "
	1,299 "

If Mr. Steers's speed is adopted, the time by this route would be as follows:

New York to Fernandina, at 18 miles per hour,	42 hours.
Fernandina to Cedar Key, (including change,)	4½ "
Cedar Key to New Orleans, do.	20½ "
	67 "

or two days and nineteen hours.

If only fifteen miles per hour is allowed, the time would be eighty-three hours, including changes, or three days and thirteen hours.

The present schedule time of mail service between New York and New Orleans is six days, but the failures are very frequent. It is conveyed all the way by railroad, except from Montgomery to Mobile by stage, and Mobile to New Orleans by water.

It is believed, therefore, that this route for travel between New York and New Orleans will not, in practice, be surpassed by any other probable line.

The only line capable to compete with it will be the contemplated interior line via the Virginia and East Tennessee railroad, when all the links of that line are filled up. And it is not out of place here to remark, that the probabilities are favorable to the completion of the air-line road between Norfolk and New York, on the sea-board route, in advance of the completion of the links upon the interior line.

But these lines will not, in fact, be competitors. They will be the two great leading conduits of travel between New York and New Orleans—both desirable—both useful—both necessary—both patronized. The one the great interior line—the other the great sea-board line, dividing the travel according to the particular fancy or convenience of the traveler. But as regards the travel between

New Orleans and all that part of the Atlantic south of Washington, the Florida route will of course be the exclusive carrier.

The sea-board line will have attractions over the other, and over all interior lines, in the following regards:

1. The greater variety in the route, which can be used to accommodate the business and pleasure of the traveler. He may go by water all the way from New York to Fernandina; or he may go by water from New York to Norfolk, (in first-class steamers, now running,) and thence by railroad to Charleston; or he may go by railroad to Baltimore, and thence by daily steamers to Norfolk, now running; or he may go by railroad through Philadelphia, Baltimore, Washington, Richmond, &c., to Charleston; and from Charleston he can go by water to Fernandina; or by railroad to Savannah, and thence by water, on inland route, (without going to sea at all,) to Fernandina; or via Savannah, all the way by railroad, to Fernandina. The road between Charleston and Savannah is organized, and in fair progress towards construction. The road from Savannah to Altamaha river is in rapid progress to completion, and thence to Fernandina, only about fifty miles of road is required to be made over a level country.

2. The greater physical comfort. The travel on the sea-board route can be so arranged as not to lose any nights' rest, or only one, at most; and this without abating progress. The traveler can go all the way from New York to Fernandina and lose no rest; or he can go from New York to Baltimore, and take the night boat to Norfolk, in which case a part of one night between Norfolk and Charleston would be the only interference with his regular rest. As compared with a continuous night and day travel by railroad for several days in succession, this is an advantage which every traveler, especially if accompanied by a family, will appreciate.

3. Greater certainty. If the steamship route from New York to Fernandina is taken, the line from New York to New Orleans being continuous, would be liable to no breaks or delays, as the trains and boats, being controlled by one interest, would wait each other. If the traveler goes via Charleston, that part of the route between Charleston and New Orleans would be continuous, and not liable to interruption. Upon any entirely interior route, a disconnection at any one of the numerous links composing the line, would cause a delay of twenty-four or twelve hours, according as the line was, daily or twice daily.

4. It would be a more healthful and agreeable route as to climate.

In winter a traveler would keep the mild sea-board climate to Charleston, and from that point he would pass through a springlike climate all the way to New Orleans.

Upon the interior route he would be passing through a cold, mountainous region, until he reached the lower part of Alabama and Mississippi.

In summer, as soon as he reached the malarial latitude, he would take the sea at Charleston, and keep it, with its healthful and agreeable breezes, all the way to New Orleans, except the brief transit of four hours across the Florida peninsula, which has the salubrity of a sea island.

Upon the interior route he would reach the malarial latitude with a body exhausted by previous night and day travel, and pass through it all the way to New Orleans in a car.

5. It would be a more economical route.

As the only necessary railroad travel between New York and New Orleans would be one hundred and thirty-eight miles, the traveler could be transported with profit for nearly one half less than upon a continuous railroad line. Or if the railroad travel was used as far as Charleston, the balance of the way being by water except the Florida railroad, it would be proportionably cheaper than the interior line.

These considerations induce a belief that the Fernandina route would attract a fair share of the travel between New York and New Orleans, and so also as to other ports upon the gulf.

II.—BETWEEN THE ATLANTIC AND CUBA.

The travel between the United States and Cuba is already very large. The independence of Cuba as a republic, or its annexation to the United States, would be followed by a stream of intercourse only paralleled by that which followed the acquisition of California. Besides this, the lines of steamers between Havana and the other West India Islands, and Central American coast, makes that a convenient point of concentration for the travel between that whole region and the United States.

The distance from Cedar Key to Havana is 359 miles, which, at 20 miles an hour, would require 18 hours, or at 15 miles an hour would require 24 hours.

A single steamer between Cedar Key and Havana would in either case easily perform a trip twice a week.

The advantage which this means of communication with Cuba

will have over every other, will be, that with a separate investment of the cost of one steamer only a twice-a-week travel can be accommodated, or with three steamers a *daily* service can be performed.

III.—BETWEEN THE ATLANTIC AND PACIFIC.

The crossings to the Pacific will be at Panama, Nicaragua, Honduras, or Tehuantepec.

I.—*Panama.*

Project an air line from Cedar Key to Aspinwall. It crosses directly over Havana on the north side of Cuba, and Batavano on the south side, where there is a sufficiently good steamer harbor.

There is a railroad now in operation between Havana and Batavano.

The distance between Batavano and Aspinwall is 817 miles, which at 20 miles per hour, would be performed in 41 hours, and at 15 miles an hour, in 54½.

Three steamers then would easily perform a twice-a-week service between Batavano and Aspinwall.

As the twice-a-week service between Cedar Key and Havana would be sustained by the Cuba travel, the only separate investment required for carrying the mails and passengers from the Atlantic States to Aspinwall would be in three steamers, which need not be as large and costly as the ships employed for the long voyage from New York to Aspinwall.

Compare the cost of these three ships and their annual maintenance with the cost of the ships that would be required for a twice-a-week service direct between New York and Aspinwall and their annual maintenance, and it will be seen that no such line could compete with the rates at which passengers and mails could be carried to Aspinwall by our route.

But if it may be supposed that in the present disturbed state of Cuba, the Spanish Government might refuse the use of the road across the Island for a thoroughfare of American travel, then until the political condition of Cuba was changed, the service could be direct between Cedar Key and Aspinwall.

The distance from Cedar Key to Aspinwall by the water route is 1,260 miles, which at 20 miles per hour, would require 63 hours, and at 15 miles per hour, 84 hours.

Two steamers would easily perform a service of once a week between Cedar Key and Aspinwall.

2.—*Nicaragua.*

The same remarks will apply to the Nicaragua crossing as to that at Panama.

3.—*Honduras, or Porto Caballo route.*

The distance from Cedar Key to Porto Caballo is 844 miles, which at 20 miles an hour, would be 42 hours, and at 15 miles, 57 hours.

Three steamers would perform twice-a-week service.

4.—*Tehuantepec.*

Project an air line from Cape Hatteras to the mouth of Huasacualco river, (the Gulf terminus of the Tehuantepec road,) and it will be found to pass directly over the track of the Florida Railroad, thus demonstrating it to be the shortest possible route from the Atlantic to Tehuantepec.

The distance from Cedar Key to Huasacualco is 903 miles, which at 20 miles an hour, would require 45 hours, and at 15 miles an hour, 60 hours.

Three steamers would perform twice-a-week service.

Would this route take the Pacific travel against direct lines from New York?

It is believed it would entirely supersede the direct lines, by making it impossible for them to be maintained profitably.

1. The time would be quicker.

The average of the time between New York and Cedar Key by the different estimates heretofore exhibited would be fifty hours.

The time, then, from New York (if twenty miles an hour is made on the Gulf) would be:

To Aspinwall 113 hours, or 4 days, 17 hours.

To Porto Caballo 93 hours, or 3 days, 21 hours.

To Tehuantepec 95 hours, or 3 days, 23 hours.

If only fifteen miles an hour is made on the Gulf, the time from New York would be:

To Aspinwall 134 hours, or 5 days, 14 hours.

To Porto Caballo 107 hours, or 4 days, 11 hours.

To Huasacualco 110 hours, or 4 days, 14 hours.

This is, of course, greater dispatch than any sea line from New York could make, and would attract passengers from the sea line.

2. The Cedar Key route would necessarily take the Pacific mail. At Cedar Key the whole Atlantic mail for the Pacific could be

concentrated by the ordinary mail routes, without any extra cost to the Government. From Cedar Key a twice-a-week service could be rendered to the Pacific crossing for so much less price (owing to the fewer ships required) than by any sea line from New York, that the mail contract would, without doubt, be secured for that line—the more certainly as the dispatch would be so much greater.

3. With less expense the Cedar Key line could make more frequent service, and the frequency of trips would draw travel from other lines by accommodating its convenience better.

4. The fact that down to Cedar Key the Pacific travelers would be conveyed by lines having other large streams of travel and trade to sustain them, and that from Cedar Key to the Pacific crossing the cost of a line would be so much less than the sea line, would enable a reduction of the charge for passengers to the Pacific below living rates for a sea line.

Without the mail pay, and without full passenger lists, a sea line could not be maintained; and, therefore, it is assumed would be superseded by the Cedar Key route.

It only remains now to compare the advantage of the sea-board route via Florida, with the interior route via New Orleans, for the Pacific and Cuban travel.

The distance from New York to New Orleans, by the inland route, will be about 1,400 miles. It is not likely to be reduced below that distance by any roads that will be constructed.

For the purpose of a perfect comparison, we will make two tables.

In the first, I take for the distance from New York to Cedar Key the water distance from New York to Fernandina, and railroad to Cedar Key, and from Cedar Key the water distance to the Gulf ports. And for the distance from New York to New Orleans I take the railroad distance as 1,400 miles, and thence the water distance to the Gulf ports.

In the second table I take the *air-line distance* from New York to New Orleans and Cedar Key, respectively, and the water distances the rest of the way.

TABLE I.

	Via New Orleans.	Via Cedar Key.	Difference in favor Cedar Key route.
From New York to Havana	2,005	1,258	747 miles.
Do. to Aspinwall	2,783	2,159	624 "
Do. to Porto Caballo,	2,318	1,743	575 "
Do. to Huasacualco	2,196	1,802	394 "

TABLE II, (AIR LINES.*)

	Via New Orleans.	Via Cedar Key.	Difference in favor Cedar Key route.
From New York to Havana...	1,771	1,308	463 miles.
Do. to Aspinwall....	2,549	2,209	340 "
Do. to Porto Caballo,	2,084	1,793	291 "
Do. to Huasacualco..	1,962	1,852	110 "

These tables are sufficiently demonstrative.

In addition to the foregoing sources of travel, a large stream of passengers will be thrown upon the line by the facility it will afford for pulmonary and other invalids to reach the healing and restorative winter climate of the Florida peninsula, from the northern and western States. Large numbers annually go now.

Nor is it unlikely that the facilities afforded by a daily line will induce large numbers of the inhabitants of the cold latitudes to establish winter residences in Florida, or to resort there in the winter months for occasional relaxation and relief from cold, and to enjoy the fine sport afforded there with gun and line.

RESULT.

From the various sources adverted to above, it is presumed that a sufficient business in freights and travel will fall upon the road to maintain it in very profitable employment.

It should be borne in mind that the combination upon the route of so much freight and passenger traffic each way, will enable the charges, both for freight and passengers, to be afforded at very low rates upon all the water lines connected with the road. And the cheapness of the road, its level grade, and air-line direction, will permit very cheap charges for transportation upon its track.

When the road from Charlotte Harbor, or Tampa, is constructed, the time for reaching Cuba and the southern ports of the Gulf will be reduced.

A very important advantage to the *route* is, that it can be managed as a line, in all its connections, by a single will, and as a single interest. It will thus be enabled to meet the competition of lines composed of various links, and managed by separate interests and influences, with the highest effect.

A very important advantage to the *road* is, that no competing line for connecting the Gulf and Atlantic by a road short enough to supersede the sea route for transportation, is practicable.

* The air-line distance from New York to New Orleans is 1,166 statute miles. The air-line distance from New York to Cedar Key is 949 statute miles.

INCOME.

The cost of the road, equipped and ready for business, will be about $3,000,000. To pay six per cent. upon this investment, will require a net income of $180,000.

Considering that the road is nearly of level grade; that there are no severe freezes in winter; that there is but one bridge upon the line of road requiring more than a single span, and only three of any kind; and that material for repairs and fuel are abundant along side the track; the expenditures for repairs and moving power will be, comparatively with other roads, very light. Forty per cent., therefore, of the gross income, should be a liberal allowance for repairs and running expenses.

To produce, then, a dividend of six per cent. upon the stock, will require a gross income of $300,000.

It is not generally practicable to form in advance any very reliable estimates of income for projected roads. I will, however, calculate, for the convenience of others, the proceeds of various different amounts of supposed employment.

Supposing the route to have reached a condition of tolerable development as a line of transport and travel, and to derive from the local and through business united, two hundred passengers and five hundred tons of freight each way daily.

With this employment the account would stand thus, (the freight being estimated at three cents per ton per mile, and the passengers at five dollars each:)

200 passengers each way, daily, at $5	$730,000
500 tons of freight each way, daily, for six days in each week, (Sundays being excluded,) at $4 14 per ton	1,295,820
Transportation of mail, at $250 per mile	34,500
	2,060,320
Deduct for expenditures, 40 per cent.	824,128
Net income	$1,236,192

Equal to 41 per cent. upon the capital.

Reduce the estimated business to 100 passengers and 250 tons of freight each way, daily, and the net income would be $636,346—equal to 21 per cent. upon the capital.

Reduce the estimated business yet further to 50 passengers and 125 tons of freight each way, daily, and the net income would be $336,423—equal to 11 per cent. upon the capital.

Reduce still further the estimated business, both local and through traffic, to 30 passengers and 100 tons of freight each way, daily, and the gross income would be $350,414, and the net income $210,250—equal to 7 per cent. upon the capital.

Taking into view that the large agricultural productions of one of the finest and most rapidly developing portions of the South must be thrown upon this road; that it will have a large naval store and lumber business throughout its length; that roads from the West, East, and South will connect with it, adding of course to its local resources; that it is indisputably the only route for trade and travel between the southern Atlantic ports and the Gulf; that it has not, and never can have, any other competitor for the transportation business between New York and the Gulf ports than the sea route, over which the difference of insurance and greater dispatch give it decided advantage; and that it possesses fair grounds of claim for a good share of the travel between the whole Atlantic slope and New Orleans and the Pacific, it would seem not unreasonable to expect very active employment for the work we are about to commence. I have no doubt that the enterprise will result in public benefit, and that the road will prove a profitable investment.

Respectfully submitted,

D. L. YULEE,
President Florida Railroad Company.

APPENDIX A.

REPORT

OF

THE SECRETARY OF WAR,

In compliance with a resolution of the Senate of February 24, 1855, calling for a report of the survey in Florida, under the act of August 30, 1852, or so much as relates to a line between Cedar Key and Amelia Island.

MARCH 3, 1855.—Read, ordered to lie on the table, and be printed, together with maps, papers, &c.

WAR DEPARTMENT,
WASHINGTON, *March* 2, 1855.

SIR: In answer to a resolution of the Senate of the 24th ultimo, I have the honor to transmit herewith a copy of the report of Lieutenant M. L. Smith in relation to "the result of the late survey in Florida, 'made under an appropriation provided in the act approved 30th 'August, 1852, or so much thereof as relates to the line examined 'between Cedar Key and Amelia Island," as called for by said resolution.

Very respectfully, your obedient servant,

JEFF. DAVIS, *Secretary of War.*

Hon. J. D. BRIGHT, *President of the Senate pro tem.*

BUREAU OF TOPOGRAPHICAL ENGINEERS,
WASHINGTON, *March* 2, 1855.

SIR: In compliance with a resolution of the Senate of the 24th February, calling for the result of the late surveys in Florida, "or so

much thereof as relates to the line examined between the Cedar Key and Amelia Island," I have the honor to submit a copy of a report from Lieutenant M. L. Smith, of the 2d instant.

The map necessary to illustrate the report is not yet ready, and will require upon it the work of a few more days. But should the Senate direct the report and map to be printed, the latter will be ready in time.

Respectfully, sir, your obedient servant,

J. J. ABERT,
Colonel Corps Topographical Engineers.

Hon. JEFF. DAVIS, *Secretary of War.*

WASHINGTON CITY, D. C., *March* 2, 1855.

SIR: I have the honor to inclose that section of the report upon the Florida canal survey relating to a line examined between the mouth of the St. Mary's river and Cedar Keys.

I am, very respectfully, sir, your obedient servant,

M. L. SMITH,
First Lieutenant Topographical Engineers.

Colonel J. J. ABERT,
Chief Topographical Engineers, Washington, D. C.

WASHINGTON CITY, *March* 2, 1855.

SIR: Before resuming the canal survey in the fall of 1853, I had the honor to receive a communication, of which the following is a copy:

"BUREAU TOPOGRAPHICAL ENGINEERS,
WASHINGTON, *November* 22, 1853.

"SIR: I transmit you a copy of a letter from Mr. Call. Although 'a survey for a railroad cannot be directed under the appropriation 'which supplies the means of your present duties, yet, in making the 'survey for the canal route, your attention can at the same time be 'given to the properties for a railroad possessed by the canal survey, 'and this subject can be made to occupy a part of your ultimate 'report.

"J. J. ABERT,
"*Colonel Corps Topographical Engineers.*"

The object of the canal survey having been the connection of the Atlantic and Gulf, for the benefit of commerce, more especially that

portion of it which passes around the Florida keys, in speaking of a railroad connecting these waters it seems proper, since the object of the two works is the same, that the discussion of them should be somewhat similar in character; hence, the proper location of the road, estimates of its cost, and its connection with the interests of the country, will be considered. Any view of the subject more general than this could amount to little more than saying what most are at present aware of, viz: that the country affords unusual facilities for such a work, since it is rather flat, has no mountains or ridges but what can be readily crossed at any given point or traversed their entire length without difficulty, no rivers not susceptible of being easily bridged, and timber of good quality is in abundance.

I will add that the canal surveys gave accurate and minute data that could be readily applied to the subject specified in your instructions.

Location of the Road.

The location of the road becomes fixed as soon as the termini are determined, and the selecting of these is of the first importance, as upon them depends the perfect connection of ocean and land transportation, consequently, the economy, facility, and safety of the change from one mode of transit to the other.

On the Atlantic side, but one point presents itself as more nearly than all others fulfilling the requisite conditions for a terminus, namely, the harbor of Fernandina, at the mouth of the St. Mary's river.

The conditions deemed necessary are, that the harbor shall be safe and of easy access, with a depth of water on the bar sufficient to admit of the entrance of the steamers and vessels trading between the northern and southern ports, a good anchorage, and that it shall be on or near the shortest line drawn, say from New York, along the coast, crossing the peninsula, and terminating at New Orleans.

The bar at the entrance of this harbor has fourteen feet at low water, with a rise of water at ordinary tide of six feet, and at neap and spring tides of from seven and a half to nine feet, thus giving a depth on the bar varying from twenty to twenty-three feet. The importance of this depth is best judged of by comparing it with what can be taken into the two main exporting ports on the southern Atlantic coast. The most recent coast survey results give on the Charleston bar ten feet at low water, making from sixteen to seventeen at high; into the Savannah river, and as far up as the anchorage where vessels load, eleven feet at low, and from seventeen to eighteen at high water.

St. Mary's is thus shown to be the first port at the South in point of natural advantages, and capable of admitting vessels of deeper draught than either of the two harbors named.

To show still further its capacity to accommodate trade, not only domestic but foreign, I subjoin an extract from the report of the Internal Improvement Board of Florida, made in December, 1854.

"It will be found, by a reference to Lloyd's list for the year 1853, 'that there are only thirty-three vessels out of the ten thousand four 'hundred and thirty recorded in that office that draw twenty feet or 'more."

The following is a list of those thirty-three vessels, showing their burden and draught:

5	vessels are of	600	tons burden, and draw	20 feet.
14	do.	700	do.	20 "
6	do.	800	do.	20 "
1	do.	900	do.	20 "
2	do.	1,000	do.	20 "
4	do.	700	do.	21 "
1	do.	800	do.	22 "

On the Gulf side two harbors present themselves, Tampa Bay and Cedar Key, each having claims to consideration, which may be briefly stated as follows:

Tampa Bay is, with the exception of Pensacola, the finest harbor on the Gulf; easy of access, capacious, with a secure anchorage, it presents a water front sufficient to accommodate the most extensive commerce—if the trade and travel of the countries bordering the entire Gulf be considered, what exists at present as well as what the future may develop, it can undoubtedly be considered central and favorably situated; but, if that portion due to the country situated between Tampa and the Rio Grande alone be considered, and this portion constitutes nearly all that now passes the Florida Keys, then its position is too distant from the direct line of transit across the peninsula to be chosen, except of necessity.

The harbor of Cedar Key does not afford as much water as Tampa, not as much indeed as is desirable, but a line connecting it with St. Mary's is so nearly the shortest one across to the Atlantic, and at the same time so much in the direction desired, that with fewer natural advantages it is still believed to be preferable to the other as a terminus. It is thought, however, that it can be shown to have capacity to accommodate the Gulf trade, and from the following considerations:

I. The depth of water that can be carried into it is equal to or greater than what is available for the other commercial ports between it and the Rio Grande, excepting New Orleans and Mobile; (indeed, adopting the system of lighterage in use at the latter, and it might compare more than favorably with it,) and in order that this may be more readily seen, the following tabulated depths are given, taken from a list compiled in the Coast Survey Office, from the most reliable authorities:

At low water.	At high water.	
Feet.	*Feet.*	
10	.....	Can be carried to anchorage below St. Marks.
7	.....	Can be carried to anchorage at do.
12½	.....	Do. do. below Appalachicola.
6	.....	Do. do. at do.
20	21	Do. do. below Mobile.
8¼	9¼	Do. do. at do.
		Mississippi Delta.
—	—	Pass à L'Outre Bar.
9½	.....	Pass North Channel.
12	.....	Pass South Channel.
—	—	Pass Northeast Pass.
10	.....	Pass into North Entrance.
6	.....	Do. South Entrance.
13	14 1-10	Do. Southwest Pass.
9	.....	Do. Barataria Bay.
7	.....	Do. Sabine Pass.
11	12	Do. Galveston.
9½	10½	Do. Matagorda Bay.
8	.....	Do. Aransas.
4	.....	Do. Rio Grande.

As to Cedar Key, Lieutenant Berryman, of the Navy, and Mr. Gerdes, attached to the Coast Survey, after an examination, both speak of it as follows: That it is easy of access, holding ground good, has an anchorage of about a mile in extent, the deep water of which is readily reached by piers, and that ten feet at low, and fully twelve feet at high water, can be carried into it.

II. Although the larger class vessels now trading to New Orleans and Mobile cannot enter at Cedar Key, the following fact, important and true, must be borne in mind: That whenever trade requires vessels of any particular form and draught, they are invariably constructed to meet those requirements, and that those of heavy tonnage and light draught are at present as often built as any other class, and are in every respect as valuable.

As a case in point, the very fine line of steamers now running to the Texas ports are instanced, all of which draw much less water than they would be required to were they trading to the port under consideration.

A more extreme case in point is that of the steamer recently commenced in New York, which it was supposed might make the trip from there to Liverpool in six days, and was to draw *only seven* feet water.

Again, Galveston, which from the above table will be seen to have

the same depth of water as Cedar Keys, has something of a foreign trade, and several arrivals yearly from Europe.

From the above considerations and facts, it has been thought safe to regard Cedar Keys as available for the Gulf terminus; and in the description and estimates which follow the line between it and St. Mary's will alone be referred to.

Should an approximate estimate for a line terminating at Tampa Bay, however, be desirable, it can be made out from this one, as, for a portion of the distance, the two lines would probably be identical, and from their point of divergence to their terminations would pass over sections of the country so strikingly similar as to require the increased distance only to be taken into consideration.

Description of the Line.

Starting from the harbor of Fernandina, the line would continue on Amelia Island till convenient to cross the inland passage at a point known as *Kingsley's Cut*, and would strike the main land near Mr. Harrison's. From this point a tangent would be run to the Santa Fé river, and slightly diverging from an air line across; from the Santa Fé another tangent would bring to the coast at Cedar Keys, a distance of 137½ miles. Thus, with the exception of the two ends running from the main land to the sea islands, the line of road would be on two tangents joined by a curve at the Santa Fé river. The divergence from an air line is only three degrees, and that the single curve proposed to be introduced is nearly equidistant from the two extremities of the road.

A more particular description will be as follows:

From Mr. Harrison's, proceeding six miles, we come to Nassau river; crossing this and some small tributaries for the succeeding three miles, the divide is reached separating the waters of the St. Mary's and Black creek. This divide, by a gentle ascent, leads to the Alachua trail ridge, which being crossed, we are immediately upon the divide between New and Sampson rivers, which continues to the valley of the Santa Fé river. From the Santa Fé the country is flat until near Newnansville, when for about 14 miles it is somewhat broken, a portion of the distance being sandy, with occasional lime sinks. Passing this the remainder of the route is on the divide between the Wacasassa and Suwanee rivers, and may be described as over a country gradually sloping to the Gulf, timbered with pine, and sprinkled with small cypress ponds and open grass marshes, varying in extent from 50 to 300 yards.

The line may be still further described by giving the established grades, which are as follows:

From Fernandina to Alachua trail ridge from 2 to 12 feet; in ascending and leaving this ridge, 15 feet; from this to the Santa Fé, 2 to 8 feet; descending to and leaving the valley of the Santa Fé, 15 feet; between this and the termination of the broken country

adjacent to Newnansville, 10 to 15 feet; thence to the Gulf, 3 to 6 feet.

Although the grades are so light there is no cutting of a greater depth than 25 feet, and no embankment higher than 25 feet, clearly showing that at a comparatively small increased cost the grades could be made even less.

The main points on the route which, in constructing a road, will demand care and involve expense are, first, crossing from Amelia Island to the main land at Kingsley's Cut. This cut will require a first-class drawbridge, say of 60 feet, and the bordering marsh to be piled for a distance of 1,590 yards.

Nassau river will be crossed 12 feet above low water, and requires a first-class draw. Some portion of its bordering marsh must be piled for the superstructure to rest upon. The exact extent of the marsh at the point of crossing is not known, hence the estimates can only be approximate for that point.

The Santa Fé is crossed at an elevation of 25 feet above the water at an ordinary stage, and will require a bridge of about 115 span. These, then, constitute the important bridges, and, with the addition of six king-post ones from 20 to 40 span, comprise all on the line.

The number of culverts and open draws is limited, and will appear in the estimates. The height of the embankment being generally inconsiderable, open drains can, in a majority of cases, be used throughout the line.

Plan of Construction.

This for a single track road, with turnouts 1,000 feet long every 10 miles. All cuts are to be 20 feet wide at base, with a slope 1 to 1; embankments 14 feet wide on top, with slopes of 3 to 2.

The cost of repairs of road bed in cuts usually exceeds that in embankments, and arises from imperfect drainage. The width of cut mentioned allows the road bed to assume the character of a small embankment from the ballasting of 18 inches to 2 feet thickness, which, when the material is at hand, should in all cases be put under the track. The grade lines have been established at all tide water 6 feet above the extreme high-water mark. The width of track had in view has been 5 feet. Opinion seems to have settled upon a width varying from 5 feet to 5 feet 3 inches as the best.

In consideration of the light grades to be overcome, estimates are made for rails not exceeding 60 lbs. to the yard, and for locomotives of from 18 to 20 tons. It is conceived that these figures ensure stability to the road, and small expense arising from repairs of engines, &c. At all points requiring piling, they are estimated as being driven 4 feet apart, with cross caps and string pieces.

Estimates.

303,314 cubic yards excavation of common earth, (haul 1,800 feet,) at 38 cents	$115,359 32
43,725 cubic yards excavation of common earth, (haul 1,400 feet,) at 32 cents	13,992 00
239,919 cubic yards excavation of common earth, (haul 900 feet,) at 26 cents	62,378 94
751,776 cubic yards excavation of common earth, (haul 600 feet,) at 22 cents	165,390 72
352,349 cubic yards excavation of common earth, (haul 450 feet,) at 18 cents	63,422 82
286,052 cubic yards excavation of common earth, (haul 300 feet,) at 16 cents	45,768 32
983,222 cubic yards excavation of common earth, at 14 cents	137,651 08
115 lineal feet of truss bridge, at $22 50	2,587 50
200 lineal feet of small bridges, at $10	2,000 00
2 drawbridges, at $2,200	4,400 00
3,920 feet trestle work, at $2 50	9,800 00
3,050 cubic yards masonry, at $8	24,400 00
4,900 yards piling, with cross-caps and string pieces, at $2 30	11,170 00
Grubbing and clearing 137½ miles, at $200	27,500 00
	$686,820 70

Cost of one Mile of Track.

Iron rails, 94½ tons, (60 lbs. per yard,) at $55	$5,198 00
3,000 lbs. iron spikes, at 5 cents	150 00
7,044 lbs. chairs, 12 lbs. each, at 4½ cents	316 98
2,640 cross-ties, at 15 cents	396 00
Ballasting track	800 00
Track laying, per mile	450 00
Total	$7,310 98

Cost of one Turnout.

1,500 cubic yards grading, at 14 cents	$210 00
1,000 feet track iron, 40 lbs. per yard, 61 tons per mile,	1,328 00
Frogs and switches, (2 sets)	100 00
Switches, bars, switch-stands, and signals	60 00
	1,698 00
Well-tank and pump	335 00
Wood-shed	100 00
	$2,133 00

One principal Depot, Shops, Station-Houses, &c.—For one Depot.

Locomotive repair sho	$25,000 00
Carpenters' shop and pattern shop	4,000 00
Blacksmith shop	2,000 00
Car-repair shop	5,000 00
Engine-house	8,000 00
Machinery in shops	20,000 00
Extra track, frogs, switches, &c	6,000 00
	$70,000 00
1 terminal depot, with machinery, for ordinary repairs	$20,000 00
1 half-way station repair shop	10,000 00
3 passenger way-station houses	6,000 00
2 terminal passenger station houses	20,000 00
Way-stations for freight, &c	10,000 00
14 water-stations and turn-outs, at $2,133	30,002 00
	$96,002 00

Locomotives.

For two passenger trains each way, daily, 6, at $9,000,	$54,000 00
For two freight trains each way, daily, 8, at $9,000	72,000 00
For lumber and gravel trains, 4, at $9,000	36,000 00
	$162,000 00

Cars.

12 passenger cars, at $2,500	$30,000 00
6 baggage cars, at $1,300	7,800 00
150 freight cars, at $600	90,000 00
60 gravel cars, at $200	12,000 00
15 crank cars, at $100	1,500 00
	$151,300 00

Summary Statement.

Grading, bridging, masonry, grubbing, and clearing,	$686,820 70
Depots, shops, machinery, turnouts, stations, &c.	166,002 00
Locomotives	162,000 00
Passenger, baggage, freight, &c., cars	151,300 00
141¾ miles of track, at $7,310 98	1,036,331 41
Total	$2,202,454 11

Being an aggregate per mile of $15,537 59.

NOTE.—The above estimates cover all expenses, it is believed, pertaining to the construction of the road under consideration, with the exception of the following,

In fixing a price for railroad iron per ton, I have been guided by what the Baltimore and Ohio Railroad Company have been paying during the past year. The present prices for iron rails of 60 lbs. per yard is about $50 for English and $55 for American, delivered. Last advices from England lead to the belief among those purchasing that prices will be higher.

A few remarks upon the bearing a transit across the peninsula will have upon the Gulf trade and interests which center there may not be out of place.

I. If the Gulf of Mexico is appropriately considered a common expansion merely of the various rivers flowing into it, then its entrance may, with evident propriety, be considered the common bar of those rivers, particularly so as, like other bars, it is the point of danger to vessels wishing to enter or leave. A general description of the passage around the southern point of Florida will, of itself, serve to make its dangerous character evident, to wit: comparatively narrow, and some five hundred miles in length, coasts low; it is lined with hidden reefs, extending many miles from shore; has a rapid current through it constantly, tending to carry vessels out of their course, and when so carried, on account of the narrowness of the channel, they are usually first warned of this danger by striking some reef. Added to this, it is subject to those tornadoes which, originating periodically in the West Indies, blow with such violence, and expend themselves after sweeping up the Atlantic coast.

But this is more forcibly told in the loss of life and numerous shipwrecks annually occurring on those keys, some accounts of which are constantly meeting the eye. Trade, which hedges itself round with as many securities as in the nature of things is possible, has sought to overcome these dangers in the only way known to it, viz: by insurance; and it is the tax by insurance due to this dangerous navigation that will be first noticed.

The subject can be simply stated thus: to insure for a Gulf port costs three eighths of one per cent. more on an average than for an Atlantic one.

In a report made by Mr. Hodge, acting Secretary of the Treasury, June 12, 1852, in answer to a resolution of the Senate, the commerce passing the straits of Florida was estimated to exceed two hundred and fifty millions of dollars per annum. Reflecting more upon the subject, Mr. Hodge subsequently concluded that it amounted to at least three hundred and twenty millions per annum.

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which, though comparatively unimportant, it is still proper to allude to, to wit: Piers, either of masonry or timber, connected with the drawbridges at the crossings of Kingsley's Cut and Nassau river. Special examination and detailed plans will be required before estimates for these can be properly made. Should the road be built by a private company expenses of engineering are to be added.

The amount allowed for stocking the road is considered sufficient for commencing with. It is better to add to this from time to time, as freight and travel may require, rather than give an equipment based upon the entire capability of the road.

It is proper to quote his own words, in order to show why no precise amount could be given: "The Department cannot arrive at 'the correct amount of the commerce of the straits of Florida, as it 'would be impossible to ascertain the value of the immense ship-'ments coastwise to New Orleans, for the supply of the States 'bordering on the Mississippi and its tributaries, besides those to the 'ports of Florida, Alabama, and Texas." In order not to give amounts which can possibly be thought exaggerated, the lowest value mentioned, to wit: two hundred and fifty millions, will be taken as the proper one. Vessels of all classes, when taken together, will average in value about eight tenths of their cargoes; hence, to carry on a commerce worth two hundred and fifty millions will require shipping to the value of two hundred millions of dollars to pass in and out of the Gulf yearly, making the total interest engaged in that commerce four hundred and fifty millions per annum; and this is the amount upon which the increased insurance is paid. Three eighths of one per cent. upon this amount is one million six hundred eighty-seven thousand five hundred dollars, and is a loss borne by those producers whose outlet to market is by the way of the Florida keys. Losses by shipwreck are not taken into the above account, since, being covered by insurance, to do so would make them enter twice into the calculation.

II. The gain in time by a transit across the peninsula may be stated as being about five days from New Orleans to a point equally distant with St. Mary's from New York; and the gain will be greater as the point of departure is nearer the Gulf terminus. Taking the amount found above (namely, $450,000,000,) and allowing six per cent. on it, which is not above the rate business men pay for money, and somewhat below the profits expected to be realized; also, give 120 days to every vessel in which to load, deliver her cargo, and return to her port again, and there is found one million one hundred and twenty-five thousand dollars paid yearly for lost time. The amount is certainly large, yet that it is a fair method of making out such a loss seems confirmed from this consideration, that trade, without an exception, settles down into the shortest channels of communication; and unless the transhipments are numerous, to prove that any particular line offers an advantage to trade, it is sufficient to show a gain in time. The amounts above stated, it is argued, the transit across the peninsula may save yearly.

The commerce of the Gulf is destined, even through causes at present existing, to be so much increased that amounts named in connection with it, moderate now, must become very great after a lapse of years; hence there would be a propriety in going into minute details respecting it, confident that large sums are being dealt with; but it would require data not at present at hand.

III. By means of the transit there can be a more rapid transmission of the mails between the north and New Orleans, hence to all points further west and bordering the Gulf.

The time, according to present rates of traveling, would be as follows: From New York to St. Mary's, 60 hours; St. Mary's to Cedar Keys, 4 hours; Cedar Keys to New Orleans, 36 hours.

Although this fact, disconnected from others, would not authorize the construction of a transit, still, once constructed, it will be a rather important circumstance.

IV. Another consideration is mentioned, and it may be more important than all other, according as circumstances eventuate.

Florida, by projecting so far south, makes the great and salient point in our coast, and, like other similar points, is the one most exposed. The fact that so large a proportion of our commerce must pass around it, and at the same time close to a foreign shore, has for years created much solicitude as to its safety in time of war.

The first and most obvious course pursued to give it security has been fortifying favorable points, such as Key West and Tortugas, making them suitable as depots and places of rendezvous for the navy, or as harbors of refuge for unprotected merchantmen.

A second course has been an endeavor to acquire the ownership of this contiguous foreign shore, thus have the channel in and out of the Gulf tributary to ourselves alone.

Without starting the question of how far this last would accomplish the desired object, the fact stands prominently before us, that, notwithstanding diplomacy and conferences, one coast with its harbors and fortifications is ours; the adjacent one, with equally good harbors and strong fortifications, is not ours; and that over the intervening passage we would not necessarily have, in time of war, more control than during the past year one of the belligerent European Powers has had over the Baltic and Black seas; further, that in the event of hostilities, an entire interruption of our commercial communications by water with the Gulf might take place.

It is well known that the channel between the West Indies and Florida is readily susceptible of being guarded by a vigilant enemy, who, stationed there, would look with equal facility into the Atlantic or Gulf, and that a vessel bound either way could be watched from hour to hour for several hundred miles.

As important as is the Gulf commerce, so important in time of hostilities would probably be another line of communication, which would enable this commerce to be carried on safely, and at no increased expense; and it is believed, that in great part a transit as proposed would accomplish this. Let the extent of the communication thus connected, and the facilities for trade afforded, be briefly considered.

A boat starting from New York could, by either the Raritan or Morris canal, pass into the Delaware; through the Delaware and Chesapeake canal into the Chesapeake; by the Dismal Swamp canal into Albemarle; thence by the inland navigation, along the coasts of North Carolina, South Carolina, and Georgia, to St. Mary's; crossing Florida to Cedar Keys, and following the coast westward, there is

a succession of shoals, reefs, and sea islands, extending to Lake Pontchartrain, forming, west of Florida, an inland navigation similar in character to that east of it. All communications with this line, from sea, are mainly fortified at present, and as it leaves the Atlantic at St. Mary's, avoiding entirely the salient point made by the peninsula, it may be said, comparing it with the navigation around into the Gulf, to be securely fortified and safe from interruption by an enemy.

The United States presents the singular feature of having what may be termed river navigation almost entirely encircling it, as follows: Starting from St. Mary's, we go to New York, as already described; then pass into the northern lakes by the Erie canal; from the lakes, by various canals, into the Ohio or Mississippi, and to New Orleans; thence to Cedar Keys. Along this navigation is known to pass a large proportion of American produce, and that on it is situated nearly every important city in the Union; and, consequently, that the transit being the connecting link which completes the great circle, and a portion of this grand thoroughfare of trade, is at once demonstrated to be connected by its termini with the greatest producing areas of our country as well as with every export city on the Atlantic and Gulf coast, this, too, by water, the cheapest of all kinds of communication.

It is not sufficient, in an opposite view, to state that there are other lines more interior, and still less exposed, that are available if ocean communication is interrupted.

This is true in theory, but is thought not to be so in point of fact; to illustrate, by a single example: Within the last five or six years the article of tobacco has been attempted to be brought to Baltimore from St. Louis, by river and railroad; the attempt was abandoned for the reason that the value of the article was consumed by freight.

To force trade along any but natural channels is virtually to suppress it; and if, in the case of hostilities, as supposed, the interior lines of railroad only existed, doubtless the great staple articles of Gulf trade which happen to be bulky, viz: cotton, sugar, and molasses, would be detained from market, or find their way there at expenses so greatly exaggerated as would be equivalent to a detention.

In conclusion, the object of the preceding remarks has been to show the necessity, as well as utility, of a direct connection between the Atlantic and gulf across Florida, from—

1st. The heavy increased insurance the dangerous navigation through the straits of Florida imposes on the Gulf trade.

2d. The loss of time; consequently the loss of interest on capital employed in that trade.

3d. The increased mail facilities that would be opened.

4th. The security that would be given to our commerce, particularly that coming under the head of coasting trade, during a period of hostilities.

Trusting the views expressed may be deemed proper and appropriate to the subject, I have the honor to be, very respectfully, your obedient servant,

M. L. SMITH,
First Lieutenant Topographical Engineers.

Colonel J. J. ABERT,
Chief Topographical Engineers,
Washington City, D. C.

APPENDIX B.

RAGGED MT. STATION, NEAR CAMDEN, MAINE,
October 14, 1854.

DEAR SIR: Agreeably to your request conveyed in letter of August 25th, I herewith transmit copies of letters from Lieutenant Berryman and Mr. Gerdes, giving their respective impressions of Cedar Keys as a commercial harbor.

The unusually large rise and fall of the tides at Cedar Keys as compared with places generally on the Gulf is also a favorable circumstance worthy of consideration. The two tides of the same day are, except at particular periods of the month, quite unequal, but the average rise and fall is two and a half feet, being one foot greater (in some cases more and in others a little less) than that of other ports on the Gulf.

Yours, respectfully,
A. D. BACHE, *Superintendent.*

Hon. D. L. YULEE.

NEW YORK, *October* 7, 1854.

DEAR SIR: In answer to your letter of September 26, with inclosure of a copy of certain inquiries from the Hon. D. L. Yulee, regarding the commercial facilities of the Cedar Keys, Florida, I have to make the following replies:

1. The depth carried from the sea into the Sea-Horse, or main channel, is fully ten feet at low, and twelve feet at high, ordinary, tide.

2. Egress and ingress are easy.

3. The anchorage at Atcena Otie (Depot Key) is about one mile long, and from two to three hundred yards wide, and separated from another and larger one at Way Key by a narrow sand bar, which,

however, may be passed around with ten feet of water. In both anchorages the depth is fifteen or sixteen feet at low tide, the holding ground good, though not compared to soft bottom, but equal to any in the vicinity. The anchorage at channel No. 4 is more extensive, but I know not if the entrance from sea is equal to the main-channel entrance.

4. All the anchorages are perfectly secure and land-locked.

5. A ship or vessel may ride out any gale, from whatever direction it comes, provided anchor and chains are good. Violent hurricanes, of course, make an exception at any place on the Gulf.

6. Wooden piers can be conveniently carried out to the deepest part of the channel.

7. The highest land on Way Key, I think, is thirty-three feet above high-water mark.

8. I have been employed for several successive years among the keys and in the vicinity, and have rarely seen any fogs, and if so, only of very short duration. Heavy gales, as a matter of course, influence the greater rise and fall of the tide; but I suppose, from the locality of the keys, not to such an extent as other places which are more locked up from the North. The highest tide in the last twelve or fifteen years rose, I believe, eleven feet at Depot Key, and overflowed only the lower part of that island. (See report 1851 or 1852.)

My impression in regard to the Cedar Keys as a commercial harbor you may partly derive from the above statements. The principal reason, however, for my belief that this place is necessarily destined to become the depot for the commerce of the growing population of the vicinity, is grounded upon the relative position of the same, and the Suwanee river, the Wacasassa, the Withlacoochee, the Crystal river, the Homasassa, and the Chesowitzka, and also upon the comparative merits of the same with other harbors near to these localities.

The annual produce of said river valleys, principally of the Suwanee, is quite considerable; and the undeveloped resources—forests of magnificent pine and cedar—are of such a magnitude that they must command very soon the attention of enterprise. The keys possess all the facilities for depots, saw-mills, &c., &c., and steamboats may run from the Suwanee, or large rafts may float from there by entirely inland water, and come up to the very wharf where vessels from the other side lay to load. *All the vicinity is bound* to make the Cedar Keys their depot, and with the rate of present increase of population they must soon become a place of some importance. The depth of water, of course, cannot compare with harbors on the northern coast, but it compares fully on the Gulf, *particularly as the water on the bar can be brought up all the way to the wharves*, a case which you will allow is exceedingly rare, and with only few exceptions found on the Gulf of Mexico.

What means the keys at present possess to support a population I cannot state, though I do not see anything against a comparison with

other parts of the Florida coast. The exportation from Depot Key amounts annually to perhaps three or four thousand bales of cotton, some sugar, tobacco, and lumber. A steamboat from the Suwanee river was running there, and the United States Florida mail steamer used to stop every week. Fish, oysters, green turtles, and every kind of game abound to a great extent, and the climate is as healthy and beautiful as any in the United States.

Respectfully submitted, by your most obedient servant,

F. H. GERDES,
Assistant United States Coast Survey.

Prof. A. D. BACHE,
Superintendent United States Coast Survey.

COAST SURVEY OFFICE,
WASHINGTON CITY, *September* 13, 1854.

SIR: Your letter of the 6th instant has been received, with copy inclosed of one from Hon. D. L. Yulee; and I have the honor to communicate the following answers to his questions concerning the commercial facilities of "Cedar Keys" as developed by the recent survey of the party under my charge:

1. The depth which can be carried in from sea by the several channels at low water is about ten feet; and at high water nearly twelve may be found with the ordinary tides.

2. Ingress and egress easy.

3. Extent of anchorage in the harbor on the "Depot" side is a little less than a mile long, by about two hundred yards broad—holding ground not very good.

No. 4 channel has more extensive anchorage, and a little deeper water; but the approach from sea to the bar is bad. Opposite Depot, and near Way Key, another anchorage of greater extent may be reached with ten feet, by passing around a narrow "sand bank" which separates it from Depot anchorage. About fifteen feet may be had in both these anchorages at low tide.

4. The anchorages are all secure.

5. The general depth in the harbors will be about fourteen feet; but this cannot be carried through the channels leading to them.

The character of the bottom for holding cannot be called good, although good enough for ships with proper anchors and cables in *all winds* or *gales*, except the violent hurricanes which sometimes visit these Keys.

6. Piers of wood may be carried to the deepest water conveniently.

7. The height of the land on Way Key may be about twenty-five feet above high-water mark, but of this I am not certain.

8. I am not aware that the location of Cedar Keys is liable to fogs, and the tides are extraordinary only in a hurricane, when, I am told, they overflow nearly all the low islands. All ports in this angle of the Gulf suffer from a rise in *heavy* southwest gales.

In addition to the foregoing, I think the anchorage southeast of Sea-Horse Key the best. Vessels have there more room to run cable than in either of the others. The best approach to these keys is from the west on the parallel of twenty-eight degrees fifty-six minutes north latitude, passing the end of the reef in about four or five fathoms water, the light-house and Sea-Horse Key may be seen bearing north thirty-three degrees east, (true.)

My impression of Cedar Keys as a harbor may be gathered from the above.

Vessels of comparatively small draft must of necessity be used.

At present, the means for supporting a population are extremely slender and precarious.

I am, very respectfully, your obedient servant,

O. H. BERRYMAN,

Lieutenant United States Navy and Assistant Coast Survey.

Prof. A. D. BACHE,

Superintendent United States Coast Survey.

P. S. It is proper to remark that heavy gales from the northeast or east, cause the depths alluded to above to be reduced several feet.

O. H. B.

APPENDIX C.

CENSUS OFFICE, WASHINGTON, *July* 16, 1855.

SIR: Your note of 13th instant, asking information in regard to the health of the Florida peninsula, as shown by the returns of the Census of 1850, has been received.

In reply, I would state in the order of your interrogatories:

1st. That in the counties of the peninsula, the number of deaths returned by the marshals show a ratio of 0.93, or less than one per cent. of the population.

2d. This rate of mortality is less than in any of the States.

3d. In the counties of Nassau, Duval, Columbia, Alachua, and Levy, through which you say the track of the Florida railroad runs, the ratio of deaths to population was 0.69 per cent.; that of the United States being 1.39, the maximum in any other State being 2.31, and the minimum 0.95 per cent.

Very respectfully, your obedient servant,

J. A. B. DE BOW,

Superintendent United States Census.

Hon. D. L. YULEE.

[The Surgeon General's letter was not received in time to be inserted.]

APPENDIX D.

TREASURY DEPARTMENT, REGISTER'S OFFICE,
July 16, 1855.

SIR: In reply to your inquiries in relation to the coasting trade of certain Atlantic ports with the ports of the United States on the Gulf of Mexico, I have to say, that an examination of the returns in this office exhibit the following results:

The number and tonnage of vessels that cleared from Boston, New York, Philadelphia, and Baltimore, coastwise for the Gulf ports of the United States, during the fiscal year ending June 30, 1854, was as follows:

	No. of Vessels.	Tons.
Boston	240	118,638
New York	481	289,973
Philadelphia	104	30,744
Baltimore	57	14,023
Aggregate	882	453,378

Making an aggregate of eight hundred and eighty-two vessels, with a tonnage of four hundred and fifty-three thousand three hundred and seventy-eight.

The amount of domestic produce cleared from New Orleans for the same ports of Boston, New York, Philadelphia, and Baltimore, during the same fiscal year, amounted to an aggregate of seventeen millions six hundred and sixty-three thousand four hundred and twenty dollars, viz:

Boston	$6,789,279
New York	8,657,087
Philadelphia	1,446,870
Baltimore	770,186
	$17,663,422

I am, very respectfully, &c.,

F. BIGGER, *Register.*

Hon. DAVID L. YULEE.

APPENDIX E.

OFFICE OF THE GLOBE MUTUAL INSURANCE COMPANY,
NEW YORK, *June* 15, 1855.

DEAR SIR: In answer to your inquiries as to the present rate of

premium on sundry risks, I refer you for the same to the schedule below, viz:

From New York to New Orleans, sailing from October 10th to July 10th	1½	per cent.
From July 10th to October 10th	2	"
From New York to Savannah, by sail-vessels	¾	"
Do. do. by steamers	⅝	"
From New Orleans to Liverpool, sailing from February 1st to July 20th; on cotton	1¼	"
Do. do. on tobacco	1½	"
Sailing from July 20th to February 1st; on cotton	1½	"
Do. do. do. on tobacco	1¾	"
From Savannah to Liverpool, sailing from March 1st to November 1st; on cotton	¾	"
Do. do. on tobacco	1	"
Sailing from November 1st to March 1st; on cotton	1	"
Do. do. do. on tobacco.	1¼	"

Very respectfully,

M. SHUBRICK, *Vice President.*

Hon. D. L. YULEE, *New York.*

APPENDIX F.

William Torrey to D. L. Yulee.

PHILADELPHIA, *June* 12, 1855.

Hon. D. L. YULEE, *Metropolitan Hotel, New York.*

DEAR SIR: Below you will find brief, but, I believe, reliable, replies to the queries in your favor of 10th instant.

I. "Will the line of communication between New York and Norfolk, over the air-line road, be constructed, and how soon?"

Reply.—It WILL be constructed; and that for the following reasons:

1st. It is indispensable to the inhabitants on the route, who are utterly secluded, and deprived of the ordinary means of access to the great cities not only, but to all parts of the country, because of their peculiar geographical position, and this notwithstanding that he character of the soil and climate fits them to become "the garden of the Union." A reference to "Wise's district," upon the map, will sufficiently elucidate its present inaccessibility.

2d. The country is remarkably fitted for the construction of railroads, both because of its level character, and the absence of all rock.

3d. There are ample and liberal charters granted by all the States on the line.

4th. The people "have a mind to the work," and in New Jersey, where the books of subscription to the stock are now open, are subscribing with remarkable liberality. In Delaware and Maryland they promise to do well, while in Virginia there is no doubt that the State will, as usual, take three fifths of the stock, as the peninsula has hitherto borne its full share of internal improvement, while never yet receiving a grant of a dollar on any work within her bounds.

5th. It will be the grand highway between the South and North; and as the cost of construction will be light, and, from the level character of the road, the cost of running moderate, it must be a good paying stock. This is the general conviction; and the results will be seen in the *speedy completion* of the work. We shall commence prior to first September next, and finish, doubtless, much within three years from that date,

II. "What is the distance, and in what time do you expect to perform the service from New York to Norfolk?"

Reply.—The following are the distances; *in all cases overrating them* to make even numbers:

	Miles.
New York to Jersey shore, in Raritan Bay	20
Delaware Bay, inside of Capes	12
Chesapeake Bay, if from Cherrystone to Norfolk	45
	77
Chesapeake Bay, if from Cape Charles	35
	67
Chesapeake Bay, if from Cape Charles to Lynhaven Bay	15
	47
Railroad in New Jersey	115
Railroad on peninsula to Cherrystone	110
Do. do. Cape Charles	125
Do. if from Cape Charles to Lynhaven Bay and thence into Norfolk	8
	357

The result is summed up as follows:

	Miles.
If to Cape Charles, and thence to Lynhaven Bay: land	248
water	47
If to Cape Charles, and thence to Norfolk; land	240
water	67
If to Cherrystone, and thence to Norfolk; land	225
water	77

Taking the *first* and most probable route, we may, on our level road, which will nowhere exceed fifteen feet to the mile, and nearly one hundred miles of which will be actually level, certainly attain a speed of considerably over thirty miles to the hour. On the water we can rely on fifteen miles to the hour. These data will bring our time within say—

248 miles railroad	8 hours.
47 miles water	3 "
Time lost by transfers	1 "
	12 "

The above is furnished after consultations with experienced men both on railroads and on steamboats, some of whom are perfectly familiar with our route.

Very respectfully, yours, WILLIAM TORREY.

APPENDIX G.

Letter from Mr. George Steers to Mr. Yulee.

NEW YORK, *July* 2, 1855.

DEAR SIR: Your letter of the 28th ultimo has been received, and contents noted. In answer, I would state that if my discretion in the construction of steamers, both as regards dimensions and cost, shall be unlimited, I will guarantee that the vessels to run from New York to Fernandina, and from Fernandina to Charleston, shall have a speed of eighteen nautical miles per hour; and those from Cedar Key to any point in the Gulf, to have a speed of twenty nautical miles per hour. The safety, comfort, and accommodation for passengers to be unsurpassed by any steamers in the world.

I have the honor to remain, very respectfully, your obedient servant,

GEO. STEERS.

Hon. D. L. YULEE, *Metropolitan Hotel, New York.*